

### **REMARKS**

This Amendment is in response to the Office Action mailed February 6, 2006 in the above-identified application. Based on the foregoing amendments and the following comments, reconsideration and allowance of the application are respectfully requested.

By this amendment, claims 18-25 and 27 have been amended in order to more particularly point out the invention. Claims 1-5, 10-14, and 26 have been cancelled without prejudice and claims 6-9, 15-17 and 28-33 have been withdrawn from consideration. New claims 34-39 have been added. Applicant believes no additional claims fees are due. Claims 18 and 34 are independent claims.

Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,020,592 to Liebert et al. in view of U.S. Patent No. 5,567,243 to Foster et al. and Liebert et al. in view of U.S. Patent No. 6,209,481 to Vesnovsky et al. Claim 5 stands rejected under 35 U.S.C. § 102(b) as anticipated by Japanese Patent Publication 01-022027 to Nakayama et al. Claims 10-14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Liebert et al. in view of Japanese Patent Publication 57-023227 to Hirata. Claims 18-20, 22-25, and 27 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Liebert et al. in view of U.S. Patent No. 6,196,155 to Setoyama et al. Claim 21 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Liebert et al. in view of Setoyama et al. and in further view of U.S. Patent No. 6,022,446 to Shan et al. Claim 26 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Liebert et al. in view of Setoyama et al. and in further view of U.S. Patent No. 6,182,604 to Goeckner et al. Claim 26 also stands rejected under 35 U.S.C. § 103(a) as unpatentable over Liebert et al. in view of Setoyama et al. and further in view of U.S. Patent No. 4,443,488 to Little et al.

Claims 1-5 and 10-14 and 26 have been cancelled without prejudice rendering rejections thereof moot. The remaining rejections are respectfully traversed.

Turning to claim 18, Applicant's amended claim 18 requires "a hollow electrode surrounding the plasma discharge region; and a first plurality of elongated magnetic elements affixed within said hollow electrode to control a radial density distribution of the plasma and thereby the dose uniformity of the ions implanted into the workpiece." (Emphasis added.) No new matter has been entered and support can be found through the specification including, but

not limited to, FIGs. 2, 3, and 4, and paragraph [0044] of Applicant's published application 2003/0101935.

Liebert et al. is relied upon to disclose a plasma doping apparatus comprising a plasma doping chamber, a platen, an anode, a process gas source, and a pulse source. However, Liebert et al. does not disclose, teach, or suggest "a first plurality of elongated magnetic elements affixed within said hollow electrode" as required by claim 18. Applicants respectfully submit the other cited references, either alone or in combination, do not supply the missing teachings of Liebert et al.

Setoyama et al. teaches a plurality of permanent magnets 20a arranged in concentric circles on the roof-plate 9 and another plurality of permanent magnets 20b "arranged in rings outside the side wall" of the chamber 2. (Emphasis added.) Column 5, line 5. See also FIG. 1 of Setoyama et al. The plurality of permanent magnets 20b are supported by a yoke 19 and the torque of a motor is converted by a mechanical system and transferred to the yoke 19 to move the magnets 20b reciprocally up and down as a group on the outside side wall of the chamber 2. See Column 5, lines 1-20. Accordingly, Setoyama et al. does not disclose, teach, or suggest a "hollow electrode" nor "a first plurality of elongated magnetic elements affixed within said hollow electrode" as required by claim 18.

Goeckner et al. teaches a cylindrical hollow cathode 300. However, Goeckner et al. does not disclose, teach, or suggest "a first plurality of elongated magnetic elements affixed within said hollow electrode" as required by claim 18.

Accordingly, Applicant respectfully submits amended claim 18 is allowable. Claims 19-25 and 27 depend from claim 18 and are patentable over the cited references for at least the same reasons.

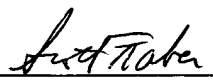
Applicant has also added new claims 34-39. No new matter has been entered and support for new claims 34-39 can be found throughout the specification including, but not limited to, FIGs. 1, 5A, 5B, 6, and paragraphs [0022] and [0043] of Applicant's published application 2003/0101935.

Claim 34 is an independent claim requiring "a first plurality of magnetic elements disposed on said adjustable anode and being movable within said plasma doping chamber to control a radial density distribution of the plasma and thereby the dose uniformity of the ions

implanted into the workpiece," which Applicant respectfully submits is not disclosed, taught, or suggested by the cited prior art alone, or in combination. For instance, Liebert et al. teaches a movable anode 24, but does not disclose, teach, or suggest a plurality of magnetic elements disposed on the anode 24. Setoyama et al. teaches a plurality of permanent magnets 20a arranged in concentric circles on the roof-plate 9 exterior to the processing chamber 2. These magnets 20a are not on an anode and are not movable within the plasma doping chamber. Accordingly, Applicant respectfully submits new claim 34 is allowable. New claims 35-39 depend from claim 34 and are patentable for at least the same reasons.

Accordingly, Applicant respectfully submits that in light of the foregoing claim amendments and remarks, all of the presently pending claims are now in condition for allowance. Reexamination and reconsideration are respectfully requested. Early allowance is earnestly solicited. In the event the Examiner deems personal contact desirable in disposition of this application, the Examiner is respectfully requested to call the undersigned attorney. Please charge any additional fees or credit any overpayments to deposit account No. 50-0896.

Respectfully submitted,  
**Steven R. Walther, Applicant**

By:   
Scott R. Faber, Reg. No. 48,380  
Varian Semiconductor Equipment  
Associates, Inc.  
35 Dory Rd.  
Gloucester, Massachusetts 01930-2297  
Telephone: (978) 282-5818